

**EXPEDITED PROCEDURE REQUESTED
EXAMINING GROUP 1713
PATENT
Customer No. 22,852
Attorney Docket No. 08130.0076**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
)
Guy Marck et al.) Group Art Unit: 1713
)
Application No.: 10/030,481) Examiner: T. Zalukaeva
)
§ 371 Filing Date: January 9, 2002) Mail Stop AF

For: COMPOUND

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Response under 37 C.F.R. § 1.116

This communication responds to the Final Office Action dated October 1, 2003. Claims 1-7 and 10-13 are pending in this application. Applicants acknowledge the Examiner's finding of allowability for claims 12 and 13 if they were re-written in independent form. The rejection of claims 1-7, 10 and 11 under 35 U.S.C. §103(a) as unpatentable in view of U.S. Patent No. 5,602,661 to Schadt et al. ("Schadt") was maintained. Applicants again respectfully traverse this rejection.

Applicants thank the Examiner for speaking with the undersigned about the rejection in a telephone interview on January 14, 2004. During that conversation, the undersigned explained why the claimed invention would not have been obvious in view of Schadt. Those arguments are presented in detail below. Also during the conversation, the Examiner asked that the applicants elect a species to use as a starting point for re-examining the claims. It was made clear that applicants were not required to amend the claims as part of this election. To be responsive to the Examiner's request, and although applicants traverse the election of species requirement, applicants elect the compound of Example 4 on page 41 of the application.

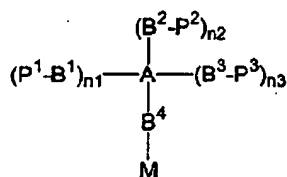
Application No. 10/030,481
Attorney Docket No. 08130.0076

That compound has the chemical name poly-[1-[11-[(E,E,E)-3,4,5-tri-[6-[2-methoxy-4-(methoxycarbonylvinyl)phenoxy] oxyhexyl]benzoyloxy]undecyloxycarbonyl]-1-methylethylene. Applicants explain below why the pending rejection should be withdrawn.

The Examiner mentioned that Schadt discloses an orientation layer for liquid crystals, where the orientation layer comprises a photo-orientable polymer network ("PPN"). Three example PPNs disclosed as PPN1, PPN2 and PPN3 appear in cols. 2-3 of the Schadt patent. The Examiner stated that these example PPNs disclosed monomer units M, spacer groups B and photoactive groups P as claimed in claim 1 of the present application. The Examiner concluded that the claimed polymers would have been obvious in view of the more specifically described compounds disclosed in Schadt.

In response to applicants' arguments raised in the Amendment dated July 31, 2003, the Examiner stated that PPN1 of the Schadt patent includes a repeating monomer unit M, which has two photoactive substitute groups attached to it. The Examiner also stated that, taking into consideration "an enormous breadth of claimed compounds and myriads of permutations allowed by applicants, a person skilled in the art would have found applicants' genus obvious over Schadt's disclosed species." Final Office Action at pages 4-5. Applicants address these points below.

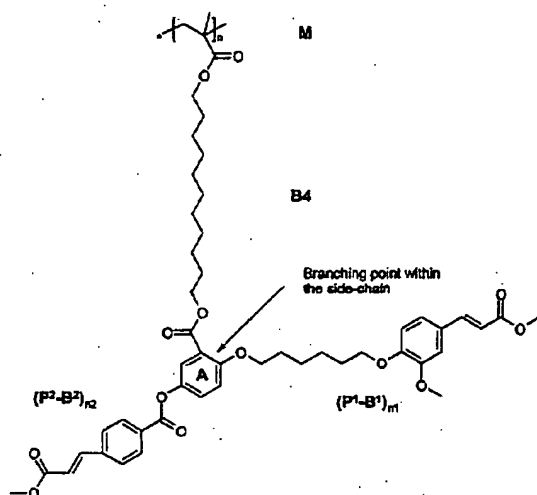
The polymer of claim 1 comprises units of formula (I):



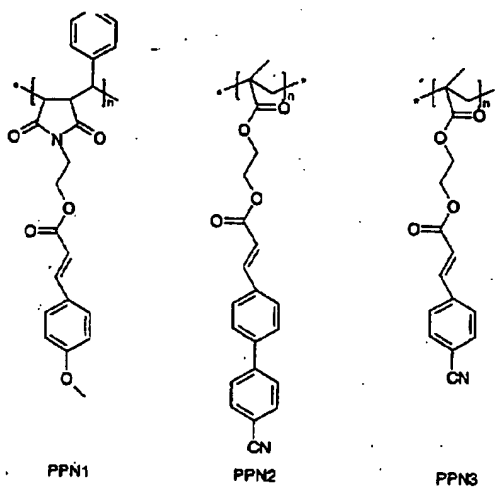
with a proviso that $1 < n^1 + n^2 + n^3 < 4$. The proviso to the definitions of n^1 , n^2 and n^3 means that group A is ultimately substituted with at least two photoactive groups P, and possibly with three. This substitution results in a branched side-chain, with group A as the branching point, and with the branches comprising photoactive groups. The

Application No. 10/030,481
Attorney Docket No. 08130.0076

compound of Example 1, reproduced below, illustrates one embodiment of the invention having the branching mentioned above:



The polymers PPN1, PPN2 and PPN3 of the Schadt patent do not comprise or suggest polymers having a group A as claimed that is ultimately substituted by two or possibly three photoactive groups. This is evident from those three structures reproduced below:



Application No. 10/030,481
Attorney Docket No. 08130.0076

These three structures show that the Schadt polymers have only one photoactive group, as opposed to two or three branching from a group A as claimed. The Examiner stated on page 4 of the Office Action that the repeating monomer unit M in the PPN1 polymer of Schadt has two photoactive substitute groups. This is not understood. Applicants respectfully request that the Examiner identify where the PPN1 polymer of Schadt is believed to suggest a group A of the invention branched by photoactive substituents as indicated in formula (I) in the invention. As discussed in the telephone interview, the group A branched by photoactive substituents is a part of formula (I) that is different from the M-B⁴- portion of the polymer.

The Examiner also cited the "enormous breadth" of the claimed polymers and the "myriads of permutations" permitted by the pending claims. The Examiner outlined certain permutations of the invention on page 3 of the Office Action. Applicants believe that perhaps the Examiner intended to say that "one or more of n1, n2 and n3 is zero" rather than "one or more of n1, n2, n3 and n4 is zero" in the 4th line of text on page 3 of the Office Action.

Applicants agree that claim 1 covers a genus of polymers. Applicants do not see how this contributes to any suggestion in the art to make the claimed polymers in view of Schadt. A *prima facie* case of obviousness requires a showing of motivation in the art to make the claimed invention and a teaching or suggestion of all claim limitations. These requirements apply regardless of whether the invention is broad or narrow. All polymers of this invention include a substitution that results in a branched side-chain, with group A as the branching point, and with the branches comprising photoactive groups. The Schadt patent, including the embodiments illustrated above, does not teach or suggest at least this feature of the invention. The Schadt disclosure therefore does not give rise to a *prima facie* case of obviousness.

Application No. 10/030,481
Attorney Docket No. 08130.0076

In view of these remarks, all of pending claims 1-7 and 10-13 should be in condition for allowance. If there is any fee due in connection with the filing of this Response, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: January 20, 2004

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